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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,036	01/19/2005	Kenji Maruyama	SHIGA7.004APC	1510
20995	7590	09/15/2006		
KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER LEE, SIN J	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/522,036

Applicant(s)

MARUYAMA ET AL.

Examiner

Sin J. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,13-18 and 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-10,13-18,21,22 and 31 is/are allowed.
- 6) ☒ Claim(s) 23-29 and 32-38 is/are rejected.
- 7) ☒ Claim(s) 30,39 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicants canceled claims 2, 3, 11, 12, 19 and 20.
2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Claim Rejections - 35 USC § 102

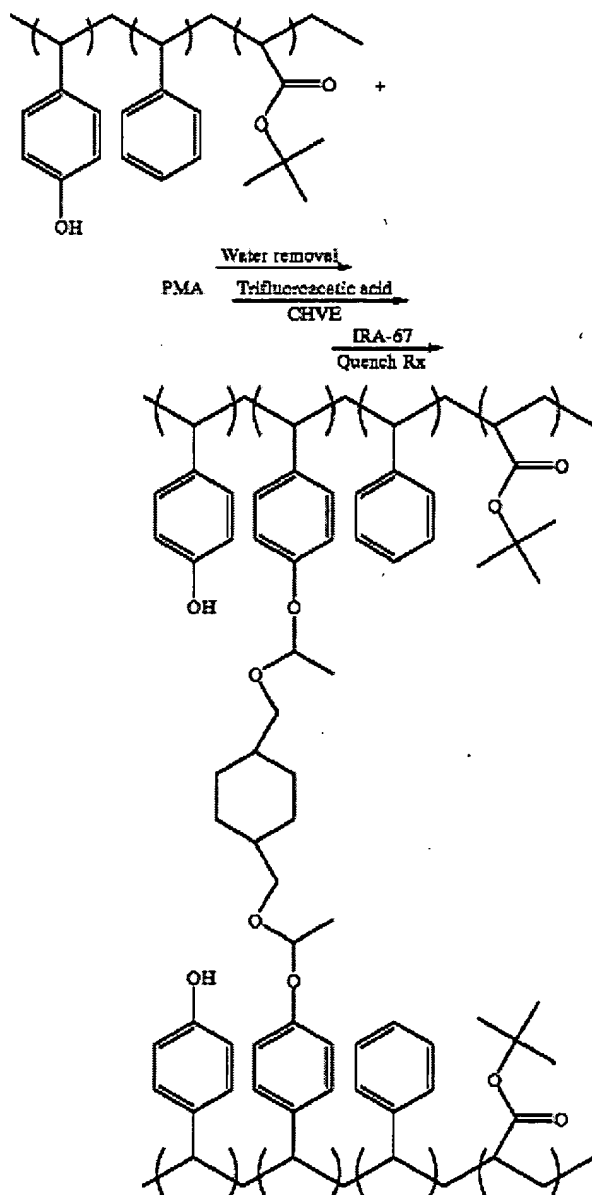
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 23-26, 28, 29, 32-35, 37 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Adams et al (US 2002/0012869 A1).

In Example 1, Adams teaches the synthesis of the following polymer:

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Synthesis of 1,4-cyclohexanedimethanol divinyl
ether (CHVE) Crosslinked Hydroxystyrene
(HS)/Styrene/*t*-butylacrylate terpolymer

[0048]



The mole % for the *styrene unit* in the starting polymer (i.e., uncrosslinked polymer) is 20 mol %. Adams combines his polymer with a photoacid generator and ethyl lactate

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solvent, and the formulated photoresist is spin coated onto a silicon wafer; solvent removed by soft bake; the resist layer is exposed to 248 nm radiation; the exposed resist layer is subjected to post-exposure thermal treatment; and then the resist layer is developed to obtain a resist pattern (see [0053]). Adams also teaches ([0036]) the use of a base such as tetrabutylammonium hydroxide (TBAH) or a lactate salt of TBAH in the amount of 1-20% by weight relative to the photoacid generator. Adams states that his resist composition can be photoactivated by an exposure wavelength in the deep UV range, typically about 150 to 300 or 450 nm. Adam states in Example 1 (see [0051]) that the acid catalyst (which was used in making the polymer shown above) was removed by using ion exchange beads for two hours. Present specification, pg.14, states that the acid component (such as an acid catalyst used to synthesize present resin) can be removed by using ion exchange resin. Therefore, it is the Examiner's position that Adam (which uses the same method of removing the acid catalyst) inherently teaches present limitation as to the acid component being 10 ppm or less. Therefore, Adams teaches present inventions of claims 23-26, 28, 29, 32-35, 37 and 38 (it is the Examiner's position that Adams's photoresist composition would inherently be capable of being used for a thick-film photolithography process used for forming a resist film having a thickness of 2-7 um and for forming a resist pattern for implantation as recited in claims 28, 29, 37 and 38).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 27 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US 2002/0012869 A1) in view of Takeda et al (US 6,593,056 B2).

As discussed above, Adams uses ethyl lactate solvent for his positive chemically-amplified photoresist composition. As evidenced by Takeda, col.42, lines 35-37, lines 50-53, γ -butyrolactone and ethyl lactate are art-known equivalent solvents for chemically amplified positive resist composition. Therefore, because those two solvents were art-recognized equivalents at the time the invention was made, it would have been obvious to one skilled in the art to use γ -butyrolactone as Adams's solvent. Therefore, Adams in view of Takeda would render obvious present inventions of claims 27 and 36.

Allowable Subject Matter

7. Claims 30, 39 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Adams does not teach or suggest present step of forming a resist film having a thickness of 2-7 μ m as claimed in claims 30 and 39.

8. Claims 1, 4-10, 13, 14 and 31 are allowed. Adams et al does not teach or suggest present resin (A) of claim 1. Claims 15-18, 21 and 22 are allowed. Adams et al does not teach or suggest present poly(bissulfonyl)diazomethane photoacid generator of present claim 15.

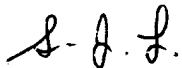
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333.

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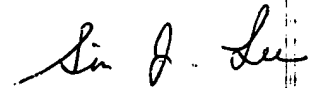
The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee
September 12, 2006



SIN LEE
PRIMARY EXAMINER